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temporary and slight to extreme and permanent disorganization may be found. His conclusions are:—

1. Power of recuperation is inherent in all nerve cells as long as they are really alive, but differs in different individuals and at different ages, with different degrees of fatigue, and with different degrees of "training." The chromatin of the cell furnishes a valuable index to the physiological recuperation.

2. Old age and death, from the point of view of the nerve cell, are the natural results of past activities and incomplete recoveries.

3. Premature senility is the certain outcome of injudicious and extravagant and long continued expenditure of energy without adequate chance of suitable rest and recuperation. Resting senile types resemble exhausted youthful types. On the other hand suitable use and proper restoration regularly repeated give power of resistance to the nerve cells.

#### TREPONEMA PALLIDA IN PURE CULTURES

Noguchi (Jour. Exp. Med., Aug., 1911) reports the reproduction of syphilitic lesions in rabbits by means of pure cultures of *Treponema pallidum* (*Spirochaeta pallida*). He passed the gross human infection thru numbers of generations of rabbits. He used infected rabbit tissues instead of human for getting pure cultures. This gave him control of material. In purifying the strain, he used cultures made of serum water (sheep, horse, rabbit) to which a piece of sterile rabbit tissue (testicle or kidney) had been added.

He had great difficulty in getting pure strains. To get the first generation of *Treponema pallidum* in virulent form, the following conditions are essential:—

1. Presence of suitable fresh sterile tissue in serum water.
2. Strict anaerobiosis.
3. Slightly alkaline reaction.
4. Temperature 35°-37°C.

He used combination hydrogen gas, vacuum, and pyrogallic acid in an aerobic apparatus to secure strict anaerobic conditions. He was thus able to establish that testicular lesions produced in

rabbits by means of syphilitic material are the result of multiplication of the *pallida* and not of some associated, indefinite parasite.

#### CELL INCLUSIONS OF NON-INFECTIOUS ORIGIN

Wolbach (Jour. Med. Research, April, 1911) describes a new type of cell-inclusions, which seem not to have an infectious origin, and are associated with lesions of a granulomatous character. The lesions consist at first of epithelioid cells and giant cells. Later connective tissue proliferation takes place, and produces a fibrous tissue-mass surrounding the giant cells. Complete cicatrization usually occurs. There is no extensive necrosis nor caseation. The lesions have been found in lymph nodes, spleen, liver and lung. The inclusions are neither artifacts nor parasites. They are found most often in the giant cells, but are also found within the endothelial leucocytes; rarely free in the lymph spaces. The typical inclusion consists of a central mass, round or oval in section, surrounded by a series of radiating straight or curved spinous projection. The central mass stains differently from the spines,—except for a smaller central body within. The author suggests that they are fibrin derivatives formed *intra vitam* within the cells by a process analogous to crystallization. No trace of tuberculosis was found in any of the cases which develop these inclusions.

#### TRACHOMA BODIES

Wolbach and McKee (Jour. Med. Research, April, 1911) conclude that trachoma bodies are not specific of trachoma, and are not parasitic in nature; but are merely the products of mucous secretion under pathological condition. In support of this:—

1. They are found only where the mucous secretion is most disturbed (tho this might quite as well be effect as cause).
2. Granules, apparently identical with the “red” granules of trachoma, are found in disturbed mucous secretion elsewhere.
3. The “plastin” material of trachoma is similar in reaction and arrangement to certain forms of mucous secretion.

#### INFLUENCE OF NERVE EXTIRPATION ON DEVELOPMENT OF MUSCLES

Davenport Hooker (Jour. Exp. Zool., Aug., 1911) presents a study of the effect of the removal of the nervous system on the de-